IAF EARTH OBSERVATION SYMPOSIUM (B1)
Earth Observation Systems (2)

Author: Prof.Dr. Tomaz Rodic
SPACE-SI, Slovenia

Ms. Ana Urbas
SPACE-SI, Slovenia
Dr. Hubert Fröhlich
SPACE-SI, Slovenia
Dr. Jan Tomec
Slovenia
Dr. Janez Langus
Slovenia
Dr. Tomaz Šuštar
Slovenia
Prof.Dr. Tomaz Rodic
SPACE-SI, Slovenia

NEMO-HD MICROSATELLITE FOR AGILE REAL TIME ACQUISITIONS OF VIDEO AND MULTISPECTRAL DATA FOR DIGITAL TWIN MODELLING OF ECOSYSTEMS

Abstract

The NEMO-HD microsatellite was successfully launched on the Vega vv16 SSMS flight on September 2, 2020. This paper presents very advanced results from NEMO-HD achieved by agile acquisitions of satellite video and multispectral data for the observation of cities, ports and open mines in area imaging modes as well as in precise scanning mode of non-linear paths along railways, motorways, coast-lines and river basins. The above-mentioned acquisitions are possible because of the very capable Guidance, Navigation and Control performance of our Multi-payload spacecraft on which multiple low and high resolution sensors can be activated sequentially or simultaneously to obtain both micro and macro observations of the investigated phenomena.

The advanced capabilities of NEMO-HD spacecraft have enabled SPACE-SI to successfully develop a wide range of very advanced technology demonstrations and EO applications that will be presented at IAC. These include the successfully completed River Basin Scanning Challenges in Alpine, Danube and Ionian-Adriatic macro regions in the scope of ESA Future EO programme Science for Society. The demonstrations yielded very high socioeconomic and environmental impacts since they enabled SPACE-SI to make a very valuable commitment to United Nations regarding Satellite Data and Digital Twin Models for River Basin Sciences and Management. Several examples from all continents will be presented to showcase how SPACE-SI has inspired UN global Water Action Agenda to deal with Climate Changes.